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PATENT ABSTRACTS OF JAPAN

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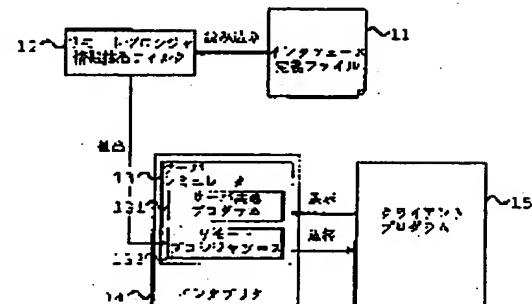
YAMAMOTO SHIGEKI

(54) PROGRAM DEVELOPMENT SUPPORTING DEVICE

(57)Abstract:

PURPOSE: To realize a function to read in a source file and a server common program and execute and debug them by generating a model source file of a remote procedure from interface definition between a server and a client and reading.

CONSTITUTION: The program of a remote procedure information sampling filter 12 which reads in an interface between the server and the client defined in an interface definition file 11 and generates the model of remote procedure called by a client program 15, and a program interpreter 14 which reads in the server common program 131 describing operations in common to all servers such as the initialization of the server, an event waiting loop, etc., and the model program of the remote procedure and executes the program to simulate a server function, are prepared.



LEGAL STATUS

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CLAIMS

[Claim(s)]

[Claim 1] How to bend a connector terminal characterized by carrying out the package clamp of the terminal of this plurality in force of decreasing each terminal thickness of two or more terminals which project from an insulating material, and bending this point of each terminal in the shape of L character.

[Claim 2] A bending tool of a connector terminal with which it has the following, and a part of point approach is pressed at least, terminal thickness of this part is decreased, and this clamp movable side is characterized by thing of each pars intermedia of two or more of these terminals for which this bending punch bends this point of each terminal collectively in this condition. A connector cradle which is the bending tool which bends this terminal of a connector with which two or more terminals which project from an insulating material are located in a line with a single tier in pars intermedia which follows each point and this point at least in the shape of L character, and holds this connector A clamp fixed side which touches each pars intermedia of two or more of these terminals of a connector held at this connector cradle A clamp movable side which confronts each other on both sides of this clamp fixed side and these two or more terminals Bending punch which touches each point of two or more of these terminals

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] This invention relates to how to bend a connector terminal, a bending tool, especially how to bend the terminal of the surface mount mold connector for printed wired boards and a bending tool.

[0002]

[Description of the Prior Art] In recent years, the connector of the type which carries out a surface mount to a printed wired board etc. is increasing. As an example was shown in drawing 2, that point was bent in the shape of L character, and, as for this surface mount (SMT) mold connector, two or more kinds terminal 2A which projects from an insulating material 1, 2B, and 2C - are located in a line with the single tier. On the occasion of mounting, as shown in drawing 3, such a connector is laid on a printed wired board 4 (the board lock 3 is inserted in this example), and is soldered by terminal 2A, 2B, 2C - the point. In drawing 3, g is a crevice resulting from irregular ** of L character-like bending of a terminal point, and if this is large, since solder is not attached, a small thing (for example, 0.1mm or less) is desired.

[0003] L character-like bending of this terminal point was performed as follows conventionally. Drawing 4 is a sectional side elevation for explaining the conventional example, and shows the condition of having equipped the conventional bending tool with the connector. this drawing — setting — 1 — an insulating material (connector), 2A, and 2B — for pars intermedia (terminal) and 11, as for a clamp fixed side and 23, a connector cradle and 12 are [a terminal (connector) and 2d / a point (terminal) and 2e / a clamp movable side and 14] bending punch.

[0004] Although terminal 2A of a connector and terminal 2B have a point of difference in a configuration, its nominal thickness in pars intermedia 2e following the 2d of points and it is the same. pars intermedia 2e following this 2d of points and it — setting — terminal 2A and terminal 2B — alternation — and it is arranged at the single tier.

[0005] Each clamp side of the clamp fixed side 12 of a bending tool and the clamp movable side 23 is a flat surface, and by these both, a large area is comparatively inserted from both sides, and it is clamped by the force which is the degree of pars intermedia 2e to which terminal thickness does not decrease. The clamp movable side 23 has the function of a bending die.

[0006] The bending method is as follows. First, where it kept away the connector cradle 11 of a bending tool from lowering and the clamp movable side 23 is caudad kept [location / of drawing] away from the clamp fixed side 12 from the location of drawing, the connector cradle 11 is equipped with a connector. Next, these are raised to the location of drawing, the clamp movable side 23 is moved to the location of drawing, and terminal 2A and pars intermedia 2e of 2B are clamped. Bending punch 14 is rotated in the direction of the arrow head of drawing in this condition, and 2d of points of terminal 2A and 2B is bent in the direction of the arrow head of drawing (the dotted line showed by a diagram like).

[0007] the terminal with which a class differs from terminal 2A and these other than 2B (a configuration and construction material differ from surface treatment etc.) — if there is 2 C ..., it will bend in the shape of L character according to an individual, respectively. Terminal 2A of all classes, 2B, and after finishing bending of ... 2 C, it inspects with a gage and the terminal of poor bending is corrected according to an individual.

[0008]

[Problem(s) to be Solved by the Invention] However, according to the above conventional technology, when two or more kinds of terminals were bent collectively, there was a problem of being easy to produce many terminals of poor bending. That is, when it will clamp between the terminals with which classes differ by the force which is the degree to which the thickness does not decrease on both sides of many terminals between two flat surfaces since many differences are in thickness slightly even if nominal thickness is the same, only a thick terminal will be clamped, and a thin terminal will not be clamped, consequently variation will be produced in an angle of bend or a bending location. The terminal of poor bending requires correction.

[0009] Although the terminal with which classes differ might be bent according to the individual as this cure, respectively, there was a problem that a bending routing counter increased in this case. This invention aims at offering how bending the connector terminal which can bend two or more kinds of terminals to homogeneity collectively, and a bending tool, without solving such a problem and increasing a bending routing counter.

[0010]

[Means for Solving the Problem] In order to attain this object, let this invention be how to bend a connector terminal which carries out the package clamp of the terminal of this plurality in force of decreasing each terminal thickness

of two or more terminals which project from an insulating material, and bends this point of each terminal in the shape of L character.

[0011] Moreover, a connector cradle which this invention is a bending tool which bends this terminal of a connector with which two or more terminals which project from an insulating material are located in a line with a single tier in pars intermedia which follows each point and this point at least in the shape of L character, and holds this connector. A clamp fixed side which touches each pars intermedia of two or more of these terminals of a connector held at this connector cradle. A clamp movable side which confronts each other on both sides of this clamp fixed side and these two or more terminals. Have bending punch which touches each point of two or more of these terminals, and even if there is little each pars intermedia of two or more of these terminals, this clamp movable side presses a part of point approach, and decreases terminal thickness of this part. It considers as a bending tool of a connector terminal with which this bending punch bends this point of each terminal collectively in this condition.

[0012]-That-is,-since-two-or-more-terminals-are-clamped-by-force-which-is-the-degree-to-which-thickness-decreases by point approach of the pars intermedia, it is bent by homogeneity, even if all terminals containing a thin terminal are clamped even if some variations are in terminal thickness, therefore it clamps two or more kinds of terminals collectively and it bends collectively.

[0013]

[Embodiment of the Invention] The operation gestalt of this invention is explained with reference to drawing 1 . Drawing 1 is a sectional side elevation for explaining the operation gestalt of this invention, and shows the condition of having equipped with the connector shown in the bending tool of this invention at drawing 2 . this drawing — setting — 1 — an insulating material (connector), 2A, and 2B — for pars intermedia (terminal) and 11, as for a clamp fixed side and 13, a connector cradle and 12 are [a terminal (connector) and 2d / a point (terminal) and 2e / a clamp movable side and 14] bending punch.

[0014] Although terminal 2A of a connector and terminal 2B have a point of difference in a configuration, its nominal thickness in pars intermedia 2e following the 2d of points and it is the same. pars intermedia 2e following this 2d of points and it — setting — terminal 2A and terminal 2B — alternation — and it is arranged at the single tier.

[0015] It clamps by the force which is the form where the clamp side of the clamp fixed side 12 of a bending tool is a flat surface, the clamp side of the clamp movable side 13 is a cylinder side, and the clamp movable side 13 presses locally 2d approach of points of terminal 2A and pars intermedia 2e of 2B, and is all terminal 2A and the degree to which the thickness of 2B decreases. The clamp movable side 13 has the function of a bending die.

[0016] The bending method is as follows. First, where it kept away the connector cradle 11 of a bending tool from lowering and the clamp movable side 13 is caudad kept [location / of drawing] away from the clamp fixed side 12 from the location of drawing, the connector cradle 11 is equipped with a connector. Next, these are raised to the location of drawing, the clamp movable side 13 is moved to the location of drawing, 2d approach of points of terminal 2A and pars intermedia 2e of 2B is clamped by the strong force, and terminal 2A and 2B are crushed a little in this portion (thickness is decreased). Bending punch 14 is rotated in the direction of the arrow head of drawing in this condition, and 2d of points of terminal 2A and 2B is bent in the direction of the arrow head of drawing (the dotted line showed by a diagram like).

[0017] the terminal with which a class differs from terminal 2A and these other than 2B — if there is 2 C ... , it will bend according to an individual, respectively. Terminal 2A of all classes, 2B, and after finishing bending of ... 2 C, it inspects with a gage, and if there is a terminal of poor bending, it will be corrected according to an individual.

[0018] Without being limited to the above example, it can deform variously further and this invention can be carried out. for example, the terminal with which a class differs from terminal 2A and 2B — this invention is effective even if it is the case where nominal thickness bends the same thing collectively among ... 2 C.

[0019]

[Effect of the Invention] How to bend the connector terminal which can bend two or more kinds of terminals to homogeneity collectively, and a bending tool can be offered without increasing a bending routing counter according to this invention, as explained above.

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TECHNICAL FIELD

[Industrial Application] This invention relates to the software-development method in a computer system, and relates to the program development exchange equipment for developing the program of a server client method efficiently especially.

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PRIOR ART

[Description of the Prior Art] In development of the system constituted with two or more modules, it is required to complete the module which will be the requisite at an early stage. When development of a premise module takes time amount, the method of shortening a development cycle is taken by developing a premise-ed module using the simulator which simulates actuation of a premise module. Such invention is considered in the method which simulates the asynchronous instruction in the test program it runs on the equipment which makes system behavior same with existing possible, and a real machine which is looked at by JP,4-277840,A, even if a target microprocessor which is looked at by JP,3-51925,A does not exist.

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EFFECT OF THE INVENTION

[Effect of the Invention] In the application development of a server client method, by reading the chicken type source file and server common program of remote procedure, and operating them by the interpreter, easily, debugging of actuation of a simulator is performed and a change of remote procedure of operation can be made. [0015] The argument of an interface etc. becomes moreover, less correct [write and] by generating the chicken type source of remote procedure from the interface definition between server clients.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] In order to shorten a development construction period, it is required to complete the server module for which a joule also needs a client at an early stage at development of the program of a server client method. For this reason, the simulator of a server is prepared and the method of enabling it to develop a client before completion of a server is adopted. However, the interface between server clients may be changed during program development. Moreover, since actuation of a client is debugged, in some cases, I want to change the response of a server. For this reason, the simulator of a server has the needs of enabling it to want to perform creation and to be able to make a change easily.

[0004] The object of this invention is to offer the program development exchange equipment which creation is performed and can make a change of the simulator of a server easily.

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MEANS

[Means for Solving the Problem] The interface between the server clients defined as an interface definition file by this invention in order to solve the above-mentioned technical problem reads, the remote procedure information extract filter program which creates a chicken type of remote procedure which a client program calls, the server common program which described the actuation common to all servers, such as initialization of a server and a waiting loop for an event, and the chicken type program of said remote procedure read, and the program interpreter which performs the program which simulates server ability prepares.

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OPERATION

[Function] A remote procedure information extract filter, the function which generates the chicken type source file of remote procedure from the interface definition between server clients by preparing a program interpreter, and the function which reads a source file and a server common program, and is performed and debugged can be realized now to program development exchange equipment.

[Translation done.]

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EXAMPLE

[Example] One example of this invention is explained using drawing 7 from drawing 1 . Drawing 1 is drawing showing the element of the equipment which realizes development environment of this method. The server common program source code which loaded the filter program whose 12 11 extracts an interface definition file and extracts remote procedure information, and 13 to the server simulator, and loaded 131 on the server simulator 13, the remote procedure chicken type source code which loaded 132 on the server simulator 13, the interpreter to which, as for 14, the server simulator 13 works, and 15 are client programs.

[0008] Drawing 2 is explanatory drawing showing the hard configuration which realizes development environment of this method. For 21, as for memory and 23, CPU and 22 are [external storage and 24] buses among drawing. The interface definition file 11 stored in external storage 23 is read into memory 22, and the filter program 12 which outputs the chicken type source code of a remote procedure, the interpreter 14 which performs the server simulator 13, and the client program 15 which is a user's candidate for debugging are arranged. The server simulator 13 functions by interpreting and performing the server common program source code 131 stored in the external storage 23 read on the interpreter 14, and the chicken type source code of the remote procedure which the filter program 12 outputs.

[0009] Drawing 3 is drawing showing the format of the interface definition file 11 used by the development environment of this method. The interface definition file 11 is constituted by the list of a definition of two or more remote procedure functions. The definition of the remote procedure function func1 in drawing 3 is constituted by the function name 31, the name 32 of an argument, and the mold name 33 of an argument.

[0010] Drawing 4 is the block diagram of the remote procedure information extract filter 12. For 41, as for the keyword information extract section and 43, the file reading section and 42 are [the remote procedure chicken type output section and 44] keyword information registration tables. The keyword information registration table 44 is constituted by the function name field 441, the argument name registration field 442, and the argument mold name registration field 443. After reading the interface information definition file 11 in the file reading section 41, divide it into the definition of the remote procedure function of each [the keyword information extract section 42], and it receives the definition of each remote procedure function. The function name 31, the argument name 32, and the mold name 33 of the argument to an argument are detected as a keyword. When a keyword is a function name, in the case of an argument name, it registers with the argument name field 442, and, in the case of the mold name of an argument, registers with the function name field 441 in the argument mold name field 443, respectively. The remote procedure chicken type output section 43 creates a remote procedure function using the corresponding argument name field 442 and the corresponding argument mold name field 443 to each remote procedure function registered into the function name field 441 of the keyword information registration table 44.

[0011] Drawing 5 is the block diagram of a server simulator. A server simulator carries out the actuation as a server simulator by operating on an interpreter 14 and having the server common program 131, the chicken type file 132 of remote procedure, the file reading section 52 that reads the program library 51 which stores the routine called by the file, the user code buffer 53

which stores the server simulation program 531 constituted by the program, and the source interpretation section 54 which carries out interpretation activation of the source code.

[0012] For 61 whose drawing 6 is a flow chart which shows the whole server common program 131 configuration, as for the port creation processing 63, network module initialization processing and 62 are [server client connection processing and 64] waiting processings for an event. It is the loop which dispatches suitable remote procedure according to the demand of a client program 15 in the waiting processing 64 for an event.

[0013] Drawing 7 is the flow chart which showed the outline of the development procedure of the application developer who is the user of the development environment of this invention. The step to which 71 creates the interface definition file 11, the step which creates the remote procedure chicken type source code 132 when 72 lets the interface definition file 11 pass in the remote procedure information extract filter 12, The step to which 73 starts an interpreter 14, the step from which 74 reads the server common program 131 into an interpreter 14, The step from which 75 reads the remote procedure chicken type source code 132 into an interpreter 14, The step which starts the server simulator 13 by which 76 is constituted from on an interpreter 14 by the server common program 131 and the remote procedure chicken type source code 132, The step which 77 starts a client program 15 and performs interaction with the server simulator 13 on an interpreter 14, The step 78 judges the activation result of step 77 to be, and 79 are steps which edit the remote procedure chicken type source 132, when the activation result of step 77 does not operate.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

- [Drawing 1]** The block diagram of one example of this invention.
- [Drawing 2]** Explanatory drawing of a hard configuration.
- [Drawing 3]** Explanatory drawing of the format of an interface definition file.
- [Drawing 4]** The block diagram of a remote procedure information extract filter.
- [Drawing 5]** The block diagram of a server simulator.
- [Drawing 6]** The flow chart of a server common program source code.
- [Drawing 7]** The flow chart of this development environment use procedure.

[Description of Notations]

- 11 -- Interface definition file,
- 12 -- Remote procedure information extract filter,
- 13 -- Server simulator,
- 131 -- Server common program,
- 132 -- Remote procedure chicken type source,
- 14 -- Interpreter,
- 15 -- Client program.

[Translation done.]

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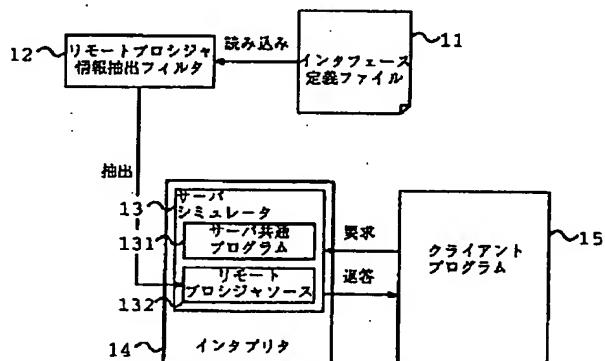
(54) 【発明の名称】 プログラム開発支援装置

(57) 【要約】

【構成】インターフェース定義ファイル11に定義されたサーバ・クライアント間のインターフェースを読み込み、クライアントプログラム15が呼び出すリモートプロシージャの雛型を作成するリモートプロシージャ情報抽出フィルタ12のプログラムと、サーバの初期化、イベント待ちループ等のすべてのサーバに共通する動作を記述したサーバ共通プログラム131とリモートプロシージャの雛型プログラムを読み込み、サーバ機能をシミュレートするプログラムを実行するプログラムインターフラを準備する。

【効果】サーバ・クライアント間のインターフェース定義からリモートプロシージャの雛型ソースファイルを生成し、ソースファイルとサーバ共通プログラムを読み込んで実行、デバッグする機能を実現することができる。

圖 1



【特許請求の範囲】

【請求項1】サーバ・クライアント方式のプログラム開発支援装置において、サーバ・クライアント間のインターフェースの定義を記述したファイルより、クライアントプログラムが呼び出すリモートプロシージャの雛型となるソースプログラムを抽出するリモートプロシージャ情報抽出フィルタと、前記リモートプロシージャ情報抽出フィルタが生成した前記リモートプロシージャの雛型ソースプログラムと、サーバに共通する動作を定義したサーバ共通プログラムとを読み込んで実行するインタプリタを持ち、サーバのシミュレータを前記インタプリタ上で動作させることを特徴とするプログラム開発支援装置。

【請求項2】前記クライアントプログラムも前記インタプリタ上で動作させる請求項1に記載のプログラム開発支援装置。

【請求項3】サーバ・クライアント方式のプログラム開発支援装置において、インターフェース定義ファイルから生成したクライアントプログラムが呼び出すリモートプロシージャの雛型ファイルと、サーバに共通する動作を定義したサーバ共有プログラムにより構成されるサーバプログラムをインタプリタで実行することを特徴とするプログラム開発支援装置。

【請求項4】サーバ・クライアント方式のプログラム開発支援装置において、リモートプロシージャ情報抽出フィルタプログラムと、サーバシミュレータのソースプログラムを解釈、実行するインタプリタプログラムと、デバッグ対象のクライアントプログラムとを実行する機能を持つ計算機上で動作することを特徴とするプログラム開発支援装置。

【請求項5】サーバ・クライアント方式のプログラム開発支援装置において、サーバシミュレータのリモートプロシージャソースプログラムを編集するエディタを内蔵する請求項4に記載のプログラム開発支援装置。

【発明の詳細な説明】

【0001】

【産業上の利用分野】本発明は、コンピュータシステムにおけるソフトウェア開発方法に係り、特に、サーバ・クライアント方式のプログラムを効率良く開発するためのプログラム開発支援装置に関する。

【0002】

【従来の技術】複数のモジュールにより構成されるシステムの開発では、前提となるモジュールを早期に完成させることが必要である。前提モジュールの開発に時間がかかる場合には、前提モジュールの動作をシミュレートするシミュレータを用いて被前提モジュールを開発することにより、開発期間を短縮する方法をとる。このような発明は、特開平3-51925号公報に見られるような、ターゲットマイクロプロセッサが存在しなくとも、存在しているのと同様なシステム動作を可能にする装置や、特開平4-277840号公報に見られるような、

実計算機上で走行する試験プログラム中の非同期命令をシミュレートする方式が考えられている。

【0003】

【発明が解決しようとする課題】サーバ・クライアント方式のプログラムの開発で、開発工期を短縮するには、クライアントモジュールが必要とするサーバモジュールを早期に完成させることが必要である。このため、サーバのシミュレータを準備し、サーバの完成以前にクライアントを開発できるようにする方法が採用されている。

しかし、サーバ・クライアント間のインターフェースは、プログラム開発中に変更される可能性がある。またクライアントの動作をデバッグするため、サーバの応答を変えたいこともある。このため、サーバのシミュレータは容易に作成／変更が行なえるようにならねたいというニーズがある。

【0004】本発明の目的は、サーバのシミュレータの作成／変更を容易に行なえるプログラム開発支援装置を提供することにある。

【0005】

【課題を解決するための手段】上記課題を解決するために、本発明では、インターフェース定義ファイルに定義されたサーバ・クライアント間のインターフェースを読み込み、クライアントプログラムが呼び出すリモートプロシージャの雛型を作成するリモートプロシージャ情報抽出フィルタプログラムと、サーバの初期化、イベント待ちループ等のすべてのサーバに共通する動作を記述したサーバ共通プログラムと前記リモートプロシージャの雛型プログラムを読み込み、サーバ機能をシミュレートするプログラムを実行するプログラムインタプリタを準備する。

【0006】

【作用】プログラム開発支援装置にリモートプロシージャ情報抽出フィルタと、プログラムインタプリタを設けることにより、サーバ・クライアント間のインターフェース定義からリモートプロシージャの雛型ソースファイルを生成する機能と、ソースファイルとサーバ共通プログラムを読み込んで実行、デバッグする機能を実現することができるようになる。

【0007】

【実施例】本発明の一実施例を、図1から図7を用いて説明する。図1は、本方式の開発環境を実現する装置の要素を示す図である。11はインターフェース定義ファイル、12はリモートプロシージャ情報を抽出するフィルタプログラム、13はサーバシミュレータ、131はサーバシミュレータ13上にロードしたサーバ共通プログラムソースコード、132はサーバシミュレータ13上にロードしたリモートプロシージャ雛型ソースコード、14はサーバシミュレータ13が稼働するインタプリタ、15はクライアントプログラムである。

【0008】図2は、本方式の開発環境を実現するハードの構成を示す説明図である。図中、21はCPU、2

2はメモリ、23は外部記憶装置、24はバスである。メモリ22には、外部記憶装置23に格納されているインターフェース定義ファイル11を読み込み、リモートプロシージャの雑型ソースコードを出力するフィルタプログラム12と、サーバシミュレータ13を実行するインタプリタ14と、ユーザのデバッグ対象であるクライアントプログラム15が配置されている。サーバシミュレータ13は、インタプリタ14上に読み込んだ外部記憶装置23に格納されているサーバ共通プログラムソースコード131と、フィルタプログラム12が出力するリモートプロシージャの雑型ソースコードを解釈、実行することにより機能する。

【0009】図3は、本方式の開発環境で利用するインターフェース定義ファイル11の形式を示す図である。インターフェース定義ファイル11は複数個のリモートプロシージャ関数の定義の並びにより構成される。図3中のリモートプロシージャ関数func1の定義は、関数名称31、引数の名称32、引数の型名称33により構成される。

【0010】図4は、リモートプロシージャ情報抽出フィルタ12のブロック図である。41はファイル読込部、42はキーワード情報抽出部、43はリモートプロシージャ雑型出力部、44はキーワード情報登録テーブルである。キーワード情報登録テーブル44は関数名称フィールド441、引数名称登録フィールド442、引数型名称登録フィールド443により構成される。インターフェース情報定義ファイル11はファイル読込部41で読み込んだ後、キーワード情報抽出部42で個々のリモートプロシージャ関数の定義に分割し、個々のリモートプロシージャ関数の定義に対して、関数名称31と、引数名称32と、引数に対する引数の型名称33をキーワードとして検出し、キーワードが関数名称の場合は関数名称フィールド441に、引数名称の場合は引数名称フィールド442に、引数の型名称の場合は引数型名称フィールド443にそれぞれ登録する。リモートプロシージャ雑型出力部43は、キーワード情報登録テーブル44の関数名称フィールド441に登録されている個々のリモートプロシージャ関数に対して、対応する引数名称フィールド442、引数型名称フィールド443を用いてリモートプロシージャ関数を作成する。

【0011】図5は、サーバシミュレータのブロック図である。サーバシミュレータは、インタプリタ14上で動作するもので、サーバ共通プログラム131と、リモートプロシージャの雑型ファイル132と、ファイルで呼び出すルーチンを格納するプログラムライブラリ51を読み込むファイル読込部52と、プログラムにより構成されるサーバシミュレートプログラム531を格納するユーザコードバッファ53と、ソースコードを解釈実行するソース解釈部54を持つことにより、サーバシミュレータとしての動作を行なう。

【0012】図6は、サーバ共通プログラム131の全

体構成を示すフローチャートである61はネットワークモジュール初期化処理、62はポート作成処理63はサーバ・クライアント接続処理、64はイベント待ち処理である。イベント待ち処理64ではクライアントプログラム15の要求に応じて、適切なリモートプロシージャをディスパッチするループである。

【0013】図7は、本発明の開発環境のユーザである

アプリケーション開発者の開発手順の概略を示したフローチャートである。71はインターフェース定義ファイル11を作成するステップ、72はインターフェース定義ファイル11をリモートプロシージャ情報抽出フィルタ12に通すことによりリモートプロシージャ雑型ソースコード132を作成するステップ、73はインタプリタ14を起動するステップ、74はサーバ共通プログラム131をインタプリタ14に読み込むステップ、75はリモートプロシージャ雑型ソースコード132をインタプリタ14に読み込むステップ、76はインタプリタ14上でサーバ共通プログラム131とリモートプロシージャ雑型ソースコード132により構成されるサーバシミュレータ13を起動するステップ、77はクライアントプログラム15を起動し、インタプリタ14上のサーバシミュレータ13とのインタラクションを実行するステップ、78はステップ77の実行結果を判断するステップ、79はステップ77の実行結果が動作しなかった時にリモートプロシージャ雑型ソース132を編集するステップである。

【0014】

【発明の効果】サーバ・クライアント方式のアプリケーション開発において、リモートプロシージャの雑型ソースファイルとサーバ共通プログラムをインタプリタで読み込んで動作させることにより、シミュレータの動作のデバッグおよびリモートプロシージャの動作変更を容易に行なうことができる。

【0015】また、サーバ・クライアント間のインターフェース定義からリモートプロシージャの雑型ソースを生成することにより、インターフェースの引数等の書き間違いがなくなる。

【図面の簡単な説明】

【図1】本発明の一実施例のブロック図。

【図2】ハード構成の説明図。

【図3】インターフェース定義ファイルの形式の説明図。

【図4】リモートプロシージャ情報抽出フィルタのブロック図。

【図5】サーバシミュレータのブロック図。

【図6】サーバ共通プログラムソースコードのフローチャート。

【図7】本開発環境利用手順のフローチャート。

【符号の説明】

11…インターフェース定義ファイル、

12…リモートプロシージャ情報抽出フィルタ、

5

6

- 1.3…サーバシミュレータ、
1.3.1…サーバ共通プログラム、
1.3.2…リモートプロシージャ雑型ソース、

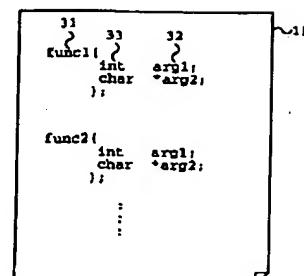
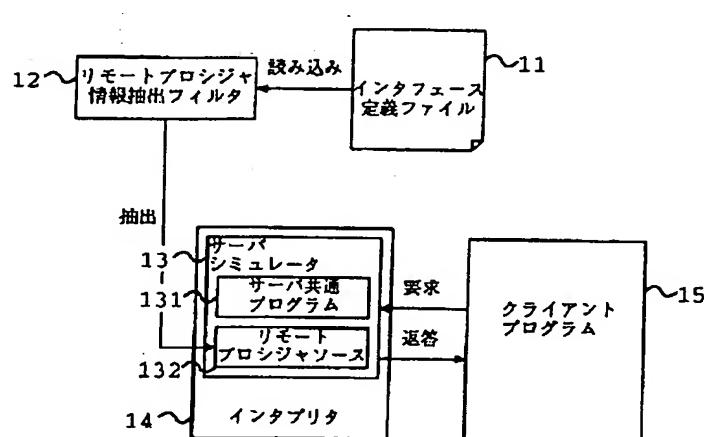
- 1.4…インタプリタ、
1.5…クライアントプログラム。

【図1】

図1

【図3】

図3

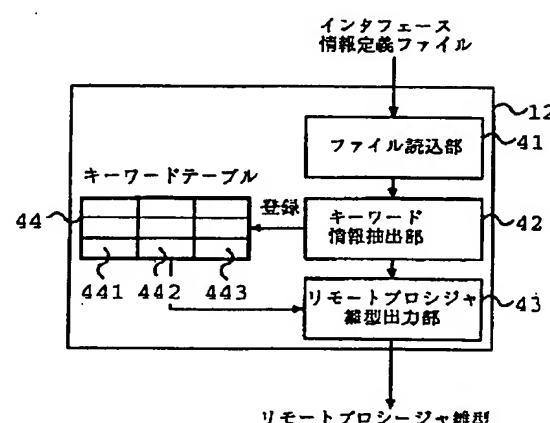
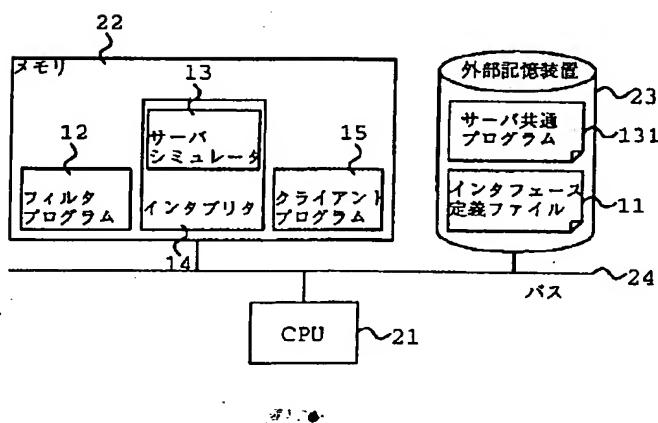


【図2】

図2

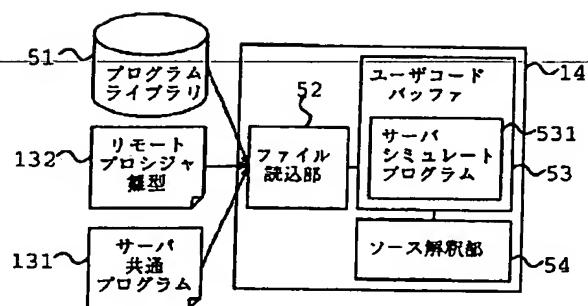
【図4】

図4



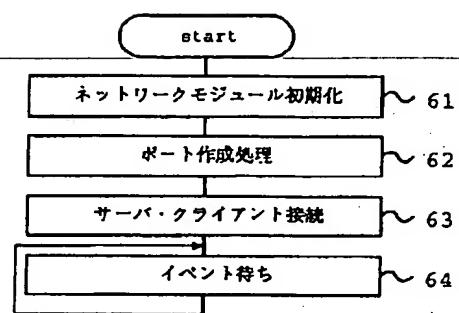
【図5】

図5



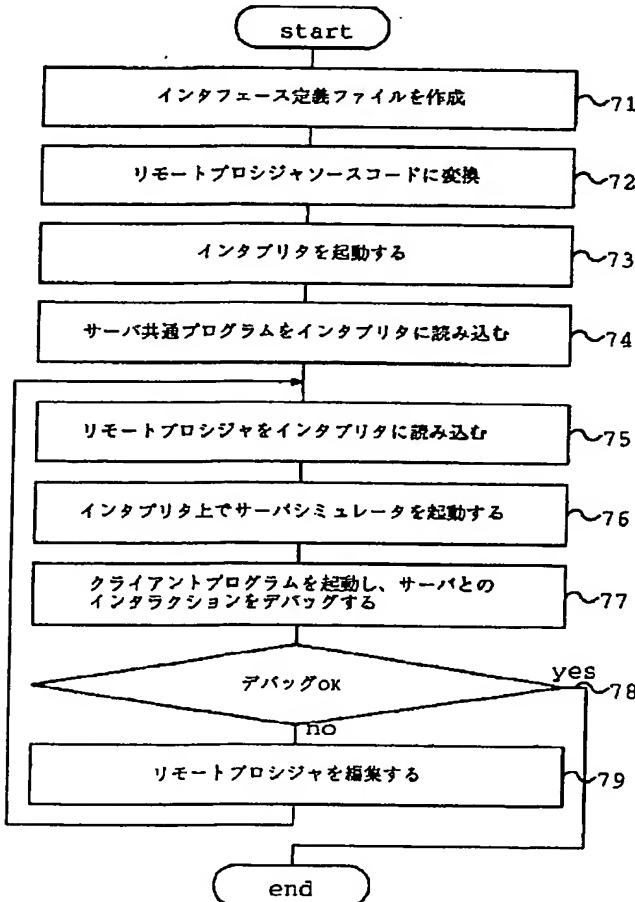
【図6】

図6



【図7】

図7



フロントページの続き

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